

**The Starling.** By Christopher Feare. Oxford University Press, New York, N.Y. 1984. x, 315pp., 14 plates. \$27.95 (cloth).

If ubiquity and abundance are criteria of success for an organism, then the European starling (*Sturnus vulgaris*) is certainly one of the most successful birds in the world. And if clarity, thoroughness, and an engaging writing style are criteria for success for a book about starlings, then Feare has also succeeded. Feare, a British ornithologist who has studied bird problems in agriculture for the past decade, has done an admirable job of merging his own detailed studies and observations with the vast body of literature that has accumulated on this species. Although the emphasis of the book centers, quite naturally, on the starling in its native range of Europe, most of the relevant literature from North America and New Zealand is also included and discussed. Over 400 references are cited. I found the index useful and relatively complete.

The book's first two chapters cover the evolution, subspeciation, and distribution of the starling. The final two chapters cover the starling's relation with man and agriculture. Sandwiched between are eight chapters on the life history of the species: from habitat requirements and feeding habits to breeding biology, survival patterns, behavior, roosting, and migration. There are 46 black and white photographs of starlings or their habitats that supplement the text nicely. Most chapters contain a few simple tables and figures to support or clarify topics discussed in the text. I found these quite useful.

The chapters covering reproduction, mortality, and roosting were particularly interesting. In spite of voluminous data on reproduction and banding, we still have rather poor estimates of annual fledgling rates per female or male or of post-fledgling survival rates. Feare also clearly points out that we are far from fully understanding roosting behavior, especially why birds will forego apparently suitable habitat nearby to fly many kilometers away to roost communally in large congregations. Many fruitful areas for research are pointed out in these and other chapters.

The final two chapters of the book convey that starlings lead a largely communal existence with mankind and that as the human population has prospered, so has the starling. As to whether this is good or bad depends on your perspective. While starling roosts are dynamited in Belgium, sprayed with insecticides in North Africa, and soaked with detergent solutions in America to reduce populations, the Soviets have constructed over 22 million starling boxes to encourage nesting! It seems that the East and West will never see eye to eye. Feare takes the middle ground in the final chapter, expounding a philosophy of integrated pest management that is dear to my heart. Ornithologists should work with agriculturalists to incorporate cultural practices, exclusion devices, selected killing, and other factors into regular farming operations to reduce starling damage and enhance their beneficial attributes.

I especially recommend this book to students considering ornithology or field biology for a career, to vertebrate pest biologists, and to others wanting a serious, but generally nontechnical, discussion of one

of the world's dominant birds. Those professional ornithologists wanting a detailed, technical critique of starling biology with a lot of statistics and theory will be disappointed.—**Richard A. Dolbeer**, U.S. Fish and Wildlife Service, Ohio Field Station, Sandusky, OH 44870.

**Flyways: Pioneering Waterfowl Management in North America.** Edited by A. S. Hawkins, R. D. Hanson, H. K. Nelson, and H. M. Reeves. U.S. Department of the Interior Fish and Wildlife Service, U.S. Government Printing Office, Washington, D.C. (Order stock number 024-010-00653-6.) 1984. 517pp. \$17.00.

The most important responsibility of the U.S. Fish and Wildlife Service is conservation of migratory birds, especially waterfowl. This obligation is buttressed legally by several treaties and innumerable laws and regulations. The effectiveness with which the United States and its treaty partners have met this challenge is respected and even envied throughout the world. True, it is far easier to develop international cooperation in North America where only three countries cover the continent than in most other areas of continental size, but still there is good reason to be proud of the migratory bird conservation program which has been developing since Canada and the United States ratified the treaty to that end in 1916.

This splendid book describes how the job is done and how the program evolved, and does so with a vitality and readability usually not found in government publications. It is truly a landmark document. I found the volume refreshing in many ways. Although written by 57 authors, it is delightfully readable and enjoyable. Clearly it is written by men who thoroughly enjoyed their jobs, many of whom have been retired from official duties for years, but are as fascinated as ever in the work and experiences they describe and are proud of the part they played.

The eleven chapters include all of the major components of the programs—research, resource inventory, refuges and habitat improvements, hunter management, transplanting birds to reestablish extirpated populations, and cooperation with States, Provinces, and other countries. Its charm, however, is in the intimate manner in which most of the authors describe their experiences, colleagues, problems, and successes, large and small. Because the authors have generally had decades of field experience, they draw upon an unusually rich background, which they make vivid to the reader. There are brief biographical sketches of 11 pioneers in North American waterfowl conservation, now deceased, which contribute to a balanced and comprehensive account. These include Fredrick Lincoln, Alexander Wetmore, Edward Kalmbach, W. L. McAtee, W. W. Cooke, E. A. Preble, E. A. Goldman, I. N. Gabrielson, Clarence Cottam, Hoyes Lloyd, and Aldo Leopold. Special attention is given to the "Darling-Salyer Team," describing how the colorful political cartoonist served waterfowl conservation in several ways. When Darling was appointed Chief of the U.S. Bu-